Space Weather Forecast

Issued on Thursday, 14 April 2022 at 01:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Coronal mass ejection arrival forecast on 14 April with Minor Geomagnetic Storms expected. Chance of Moderate Storms and very slight chance of Strong Storms.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been very low with no significant flare activity. There are four sunspot regions on the visible disc, three benign regions in the northeast quadrant and one unipolar region on the southeast limb. There were no new Earth-directed CMEs (coronal mass ejections) on available imagery.

Solar Wind / Geomagnetic Activity: The solar wind has weakened from elevated to slightly elevated levels due to a waning solar fast wind. The total magnetic field became moderate for a time, due to a CME which arrived at the Earth on 13 April, but is now weakening. The important north-south component was weak, but slowly rotated from a negative to positive orientation due to the CME arrival. Geomagnetic activity started Unsettled, but has been Quiet for much of the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be very low, with no significant regions on, or expected to rotate onto, the visible disc.

Solar Wind / Geomagnetic Activity: The CME which arrived at Earth on 13 April continues to weaken. A further Earth-directed CME is forecast to arrive at Earth later on 14 April. Aside from the CME, a recent fast solar wind continues to decline. The next fast solar wind is due to start affecting the Earth on 16 April, producing elevated solar wind speeds. Geomagnetic activity is expected to increase from Quiet to Unsettled, reaching Active or G1/Minor Storms on 14 April, due to the CME arrival. There is also a chance of G2/Moderate Storm intervals and a very slight chance of G3/Strong Storm intervals. There is a decreasing risk of G1/Minor Storms through 15 to 17 April due to a combination of residual CME effects and the potential onset of the next fast solar wind.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	70	40	20	10
Strong	G3	No	10	1	1	1
Severe	G4	No	2	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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